Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2018-03-05-02** **Date: 10/03/2018**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.

Address : Vidyaranyapura Sub division, BBMP, Bangalore.

Project Name : Drilling of Borewells, Providing Pump Motor and Commissioning at Ramachandrapura, 2nd BEL Layout, Munisamappa Layout and Blue Moon Garden Surroundings in Ward No.10, Doddabommasandra.

Agency : Executive Engineer, KRIDL, #280, 59th Cross road, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/78/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 05-03-18

Sample ID No : 2018-03-05-02 /01

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M15 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 10/03/2018

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M15	03/03/2018	10/03/2018	149.63 X 150.22 X 150.47	22477	8.147	303.4	13.5	13.2
2	PCC	M15	03/03/2018	10/03/2018	150.66 X 149.28 X 150.46	22491	8.165	290.1	12.9	
3	PCC	M15	03/03/2018	10/03/2018	149.38 X 150.23 X 151.22	22441	8.146	294.0	13.1	

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Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore-97

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2018-03-05-02** **Date: 31/03/2018**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.

Address : Vidyaranyapura Sub division, BBMP, Bangalore.

Project Name : Drilling of Borewells, Providing Pump Motor and Commissioning at Ramachandrapura, 2nd BEL Layout, Munisamappa Layout and Blue Moon Garden Surroundings in Ward No.10, Doddabommasandra.

Agency : Executive Engineer, KRIDL, #280, 59th Cross road, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/78/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 05-03-18

Sample ID No : 2018-03-05-02 /02

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M15 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 31/03/2018

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M15	03/03/2018	31/03/2018	149.82 X 150.66 X 150.48	22572	8.245	372.4	16.5	17.2
2	PCC	M15	03/03/2018	31/03/2018	150.56 X 150.13 X 149.88	22604	8.147	388.8	17.2	
3	PCC	M15	03/03/2018	31/03/2018	150.24 X 149.85 X 150.66	22513	8.201	400.7	17.8	

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2018-02-28-02** **Date: 02-03-18**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.

Address : Vidyaranyapura Sub division, BBMP, Bangalore.

Project Name : Drilling of Borewells, Providing Pump Motor and Commissioning at Ramachandrapura, 2nd BEL Layout, Munisamappa Layout and Blue Moon Garden Surroundings in Ward No.10, Doddabommasandra.

Agency : Executive Engineer, KRIDL, #280, 59th Cross road, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/78/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 28-02-18

Sample ID No : 2018-02-28-02 /03

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 28-02-18

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	23	23	2.3	97.7	90-100	90-100	90-100	95-100
3	2.36 mm	185	208	20.8	79.2	60-95	75-100	85-100	95-100
4	1.18 mm	224	432	43.2	56.8	30-70	55-90	75-100	90-100
5	600 micron	201	633	63.3	36.7	15-34	35-59	60-79	80-100
6	300 micron	189	822	82.2	17.8	5-20	8-30	12-40	15-50
7	150 micron	132	954	95.4	4.6	0-10	0-10	0-10	0-15
8	Pan	46	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

Assistant Executive Engineer
Vidyaranyapura Sub Division
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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2018-02-28-02** **Date: 02-03-18**

Sample ID No : 2018-02-28-02 /03

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.88	_
2	Specific Gravity	2.54	_
3	Material finer than 75 micron(%)	4.2	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2018-02-28-02** **Date: 02-03-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP,
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Drilling of Borewells, Providing Pump Motor and Commissioning at Ramachandrapura, 2nd BEL Layout, Munisamappa Layout and Blue Moon Garden Surroundings in Ward No.10, Doddabommasandra.
Agency	:	Executive Engineer, KRIDL, #280, 59th Cross road, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.
Customer's Reference	:	BBMP/EE/BTP/WO/78/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-02-18
Sample ID No	:	2018-02-28-02 /01
Sample Type	:	ACC 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	28-02-18
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.85	–
2	Finess by Air permeablity method (m^2/kg,Min)	292.4	225m^2/kg, Min
3	Density (gm/cc)	3.12	–
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	145 minutes	Not less than 30 minutes
6	Final Setting time	265 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

Note:

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2018-02-28-02** **Date: 28-03-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Drilling of Borewells, Providing Pump Motor and Commissioning at Ramachandrapura, 2nd BEL Layout, Munisamappa Layout and Blue Moon Garden Surroundings in Ward No.10, Doddabommasandra.
Agency	:	Executive Engineer, KRIDL, #280, 59th Cross road, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.
Customer's Reference	:	BBMP/EE/BTP/WO/78/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-02-18
Sample ID No	:	2018-02-28-02 /01
Sample Type	:	ACC 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	28-02-18
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	29.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	38.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	55.5N/mm^2	Not less than 53 N/mm^2

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-02-28-02** **Date: 02-03-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Drilling of Borewells, Providing Pump Motor and Commissioning at Ramachandrapura, 2nd BEL Layout, Munisamappa Layout and Blue Moon Garden Surroundings in Ward No.10, Doddabommasandra.
Agency	:	Executive Engineer, KRIDL, #280, 59th Cross road, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.
Customer's Reference	:	BBMP/EE/BTP/WO/78/2017-18
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	28-02-18
Sample ID No	:	2018-02-28-02 /02(a)
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	28-02-18

Assistant Executive Engineer Vidyaranyapura Sub Division BBMP, Bangalore - 97

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	301	301	2.0	98.0	90-100
3	20 mm	7285	7586	50.6	49.4	30-70
4	10 mm	5248	12834	85.6	14.4	10-35
5	4.75 mm	1991	14825	98.8	1.2	0-5
6	Pan	175	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2018-02-28-02** **Date: 02-03-18**

Sample ID No : 2018-02-28-02 /02(a)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.1	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.5	
3	Specific Gravity	2.62	_
4	Bulk Density(Loose) (Kg/l)	1.45	_
5	Bulk Density(Compacted) (Kg/l)	1.49	_
6	Water Absorption(%)	0.22	_

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-02-28-02** **Date: 02-03-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Drilling of Borewells, Providing Pump Motor and Commissioning at Ramachandrapura, 2nd BEL Layout, Munisamappa Layout and Blue Moon Garden Surroundings in Ward No.10, Doddabommasandra.
Agency	:	Executive Engineer, KRIDL, #280, 59th Cross road, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.
Customer Reference	:	BBMP/EE/BTP/WO/78/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-02-18
Sample ID No	:	2018-02-28-02 /02(b)
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	28-02-18

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	198	198	4.0	96.0	90-100
3	10 mm	2585	2783	55.7	44.3	25-55
4	4.75 mm	1869	4652	93.0	7.0	0-10
5	Pan	348	5000	100	0	_

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2018-02-28-02** **Date: 02-03-18**

Sample ID No : 2018-02-28-02 /02(b)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	9.2	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.8	
3	Specific Gravity	2.64	_
4	Bulk Density(Loose) (Kg/l)	1.48	_
5	Bulk Density(Compacted) (Kg/l)	1.53	_
6	Water Absorption(%)	0.18	_
7	Aggregate crushing Value(%)	22.9	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	23.7	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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TEST REPORT OF PRECAST COVER SLAB

Lab ID : **CP-2018-02-28-02** **Date: 03-03-18**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.

Address : Vidyaranyapura Sub division, BBMP, Bangalore.

Project Name : Drilling of Borewells, Providing Pump Motor and Commissioning at Ramachandrapura, 2nd BEL Layout, Munisamappa Layout and Blue Moon Garden Surroundings in Ward No.10,

Agency : Executive Engineer, KRIDL, #280, 59th Cross road, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/78/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 28-02-18

Sample ID No : 2018-02-28-02 /04

Sample Type /Size : Precast Cover Slab

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete

Date of test : 28/02/2018

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	150.63	250.03	3.385	17817	388.5	21.8	21.8	27.3
2	Cover Slab-2	150.44	250.05	3.344	17772	384.1	21.6	21.6	27.0
3	Cover Slab-3	150.48	250.04	3.369	17781	387.7	21.8	21.8	27.3

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Vidyaranyapura Sub Division
BBMP, Bangalore

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